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ECONOMICS

LESSON 4

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ECONOMICS

LESSON IV.

Modern Agriculture and Transportation.

Agriculture.

IN the last lesson we dealt with the development of Canadian agriculture down to about the year 1850, and showed how with the gradual settlement of the country there was a continuous process of specialization of labour—how at first the pioneers produced almost everything for themselves, and went without what they could not produce, while at a later date they were able to hand over such work as tailoring, blacksmithing, shoe-making, store-keeping, etc., to people who, through exclusive attention to these respective branches of work, were able to produce more efficiently and cheaply. Production is most efficient where, as the old proverb has it, the cobbler sticks to his last and others also devote themselves exclusively to their respective trades.

In the present lesson it falls to our lot to study the later development of our Canadian agriculture—a development which proceeds in the main along the same line as that already noted—the line of specialization, or, as economists prefer to call it, the division of labour. There is, however, another important feature in the development of agriculture during the past half-century—the introduction of agricultural machinery. The agriculture of the present differs from that of the period with which we dealt in our last lesson in two main points, first, the greater specialization in the type of agriculture followed; second, the introduction of machinery. I find it advisable to deal first with the introduction of machinery.

Introduction of Machinery.

The farmer of half a century ago had comparatively few tools to help him in his farming. He had, of course, his wagon, his plough, spades, shovels, picks, harrow, etc., but the part of his work in which he could avail himself of the help of machinery was far smaller than it is to-day.

The great extension of the use of machinery may be seen from the statistics. In the 1861 census of Upper Canada—the first census when such information was collected—the farm lands are valued at $295,163,315; the farm implements used to cultivate them at $11,280,356—about one twenty-sixth of the value of the land. According to the census of 1901 the value of farm lands in Canada was $1,004,923,792; of farm implements, $107,630,565. The value of the implements is thus seen to be more than one-tenth the value of the lands. Indeed, in the Western provinces it reaches one-sixth of the value of the lands. The tendency, we may safely say, is for this ratio to increase, and for the value of the implements used in cultivating the land to bear a greater proportion to the value of the land itself. Mr. C. C. James points out that there has been a tendency for the prices of agricultural machinery to decrease, so that the real increase in the amount of agricultural implements in use is much greater than is indicated by the figures. Twelve million dollars worth of agricultural machinery was produced in Cananda in 1905.

What is the consequence of this great increase in the use of machinery? Simply that much of the work formerly done by the manual labour of human beings is now being performed by machinery, which has to a very large extent taken the place of human beings on the farm as in the workshop. By its aid fewer workers are now able to turn out a greater product with greater ease than in former times. The amount of drudgery in farm labour has very much declined as a result, and the average farm laborer of the present day, always excepting those whom we may call apprentices to farming, is a more intelligent and efficient person than he was 50 years ago, as it is necessary for him to have a considerable knowledge of machinery.

"The great improvement which has taken place in agricultural methods and machinery enables the relatively smaller farm population to satisfy the demand for agricultural produce even more completely than in the past. That is to say, the machine power introduced into farming has more than taken the place of those persons and their descendants who have abandoned agriculture. It has been estimated that in 1895 in the United States it actually required only about 120,000,000 days' work to produce the nine principal farm crops of that year, whereas had they been produced by the methods and machinery of 1850, at least 570,000,000 days' work would have been required".

(H. W. Quaintance, "Influence of Farm Machinery on Production and Labour," pp. 27-29).

If we accept Mr. Quaintance's conclusions, we see that nearly four-fifths of the labour put upon the land in 1850 was in 1895 done by machinery. It is entirely probable, though the paucity of our statistics makes it an assertion impossible to prove, that the same holds good for Canada in 1910—that a given quantity of agricultural commodities can be produced with one-fifth of the manual labour required in 1850. Is it not natural, then, that the surplus labour once employed on the farms resorts now to the towns, as the farms, at least under the ordinary system of extensive farming, can no longer provide that labour with employment?

Decline in Rural Population.

One of the results of this is a relative decline in the population of old-established farming communities, which now require less labour than they did a generation ago. The Ontario Bureau of Industry reports that in the comparatively short period from 1900-1909 the rural population has declined from 1,108,874 to 1,047,000, a decrease of 5.5%, while in the same years the urban population increased 32.75%. The Dominion census of 1911 tells the same story. The aggregate population of towns of 4,000 or more inhabitants in the Dominion of Canada has increased from 1,200,000 to 2,400,000, or roughly 100%: the population of rural districts and villages and towns under 4,000 has increased from 4,200,000 to 4,800,000 or 14.2%. This is the case in a country where the call of the land is more insistent and the opportunities on the land are perhaps greater than anywhere else in the world.

The very considerable shifting of our agricultural population to the cities or to the new lands of the West, has been going on for some forty years. Rural Ontario, in its more southern parts at least, was probably most thickly settled about 1871, and the present rural population of the Province, even taking into account the colonization of New Ontario, is only about equal to what it was in 1867, when the Dominion first came into existence. The same situation exists in the Maritime Provinces and nearly the same in Quebec, where in spite of the agitation for the colonization of the Lake St. John country, rural population is practically at a stand-still. It is only in the three Prairie provinces of the Dominion that the agricultural population can be said to be on the increase.

Some examples taken from old-settled rural communities will emphasize this displacement of the rural population. They can be duplicated almost anywhere in the older settled rural communities of Eastern Canada, wherever fruit culture and market gardening have not taken the place of the former extensive farming.

The township of Chinguacousy, in the county of Peel, is a fertile agricultural district, with a soil well adapted for the raising of root and grain crops. Its population at the various censuses since 1861 is as follows:—1861, 6,897; 1871, 6,129; 1881, 5,476; 1891, 4,744; 1901, 4,177; 1911 (assessor's figures), 3,381. There are only 49 people now resident in the township for every 100 resident there in 1861—a decline of over one-half.

The county of Prince Edward is an old-settled agricultural community. Its population, exclusive of the town of Picton, is as follows:—1861, 18,802; 1871, 17,975; 1881, 18,069; 1891, 15,602; 1901, 14,166; 1909, (assessor's figures), 12,382. This shows a decline of 34%, and is unduly favourable to the rural population, since the two growing villages of Wellington and Bloomfield have had to be included throughout.

The county of Iberville is an old-settled agricultural community in the Province of Quebec. Its population, exclusive of the town of Iberville was in 1861, 15,301; in 1871, 13,916; 1881, 12,612; 1891, 10,183; 1901, 8,161. Here we have a decline of 46 per cent. in forty years.

The population of King's county, Prince Edward Island, which, with the exception of the village of Georgetown, is an almost purely agricultural community, declined from 26,433 in 1881 to 19,826 in 1901, a decline of over 25 per cent.

This decline in rural population is regarded by a great many keen observers as a national calamity, a symptom of decaying vitality. There is some truth in the allegation, but it appears to the writer to be very greatly exaggerated. City life in these days is not usually unsanitary or enervating, as it was a couple of generations ago, when contagious diseases rapidly spread unchecked among crowded populations and weakened those whom they did not kill. Nor again is farm life so particularly healthy as is sometimes imagined. Bad water, bad cooking, distance from medical attention, and other conditions so often present in farm-life tend to make life on the farm no healthier than city life. The great economic reason for the exodus from the farms is simply that there is not sufficient fairly-paid work there to give the laborer a decent living. Our winter seems inevitably to stop all farm activities for several months, and the laborer who cannot find work during these months, naturally drifts to the city. If the city provides him sufficient fairly well paid work, he stays there. Since so many indoor industries which used to be engaged in on the farms during the winters have migrated to the cities, it is only natural that they should carry along with them the labour which they formerly employed on the farm.

Specialization in Farming.

While early specialization in Canadian agriculture was concerned mainly with taking over from the farmer duties which have no necessary relation to farming at all, the later specialization is mainly in the different branches of agriculture itself. It is now recognized that farming is not a single industry, but a great body of industries. No man can be an expert in all kinds of farming at the same time. The life of the fruit farmer of the Niagara Peninsula or the Annapolis Valley or the dairy farmer of Ontario or Nova Scotia, is very different indeed from that of the wheat farmer of the prairies. If any one of them were transplanted into the place of any other, he would find himself with a very great deal to learn, and would make many mistakes in the learning of it. On the whole, the productive power of the country would be lessened by the interchange of work. As things are, we find the fruit farmer of the Niagara Peninsula obtaining his wheat from Manitoba and his milk from the dairy farmers of the higher grounds near his farm. The prairie farmer gets his fruit from Ontario. The dairy farmer very probably does not produce enough wheat to feed his own family. All these are interdependent on each other. It is usually a mistake to say that the modern farmer is economically independent of the rest of the world. The fact is that if he is a progressive farmer he will confine himself to his specialties, and will depend upon other farmers to supply him with many of his food products. There is one qualification to be made to this statement. If the farmer's specialties occupy him only at certain seasons of the year, he may very well devote himself to work which can be done at a time when it will not interfere with his main vocation, even though he is not an expert at this second kind of work.

This increasing division of labour among farmers issues from two main causes. (1). The farmer learns to grow those crops which his land is best adapted to produce. (2). He learns to grow those crops in the production of which he is most proficient. It is on record that the early farmers neglected the fruit lands on the south shore of Lake Ontario as worthless, becanse they were not adapted to the production of wheat. It was not until long afterwards that this land was found to be admirably adapted to the production of fruit. In order to secure efficient production, then, it is necessary to have the right man on the right land.

The chief essential to a properly specialized system of farming is the formation of associations interested in various specialties and the widespread dissemination of information on all sorts of subjects interesting agriculturists of various kinds. Such are the "Dominion Fruit-growers Association" and the association of the breeders of Jersey cattle. The function of encouraging such organizations and promoting agricultural education is performed fairly well by the Federal and most of the Provincial Governments as is evidenced by the Dominion Experimental farms and the Ontario Agricultural College. Also it is of importance to have in each section what we might call an agricultural chemist who after analyzing their soils will tell the farmers what crops to grow.

The Ontario Government has lately adopted the plan of putting an agricultural expert into each county. He should be able to advise on varieties of seeds, etc. All money wisely spent in furthering agricultural development is sure to be exceedingly reproductive. The state can spend money in no better way. (The student should, if possible, procure the 31st. annual report of the Ontario Agricultural and Experimental Union, 1909, and read Mr. C. C. James' account of his visit to Svalof, Sweden, where a new variety of wheat has been produced, which in 1908 yielded on one plot 70.4 bushels to the acre, and on the average of all experiments in that year yielded 56.2 bushels to the acre.)

The effect of an enlightened policy with regard to agriculture can be clearly shown by our Canadian statistics. In 1901 there were 472,000 farmers producing to the extent of $365,000,000—an average production of $769 worth of commodities. There were estimated to be in 1909 575,000 farmers in Canada with a total population dependent upon agriculture of 3,775,000, an investment in this basic industry of $2,440,000,000, and a yearly agricultural revenue of $700,000,000, or $1,217 per farm. The great increase is, of course, partly due to the higher price of the farmer's products in 1909, but it is attributable mainly to the better type of farming and better agricultural education, more careful discrimination between different varieties of seeds, etc. In spite of occasional bad seasons, the farmer is, on the average, better off every year, and the prospects of Canadian agriculture and Canadian agriculturists are of the brightest.

Transportation.

In order that the specialization which we have described may exist among the agricultural community, it is essential that the specialist in one kind of production shall be able to send his surplus products away to some other specialized producer who sends in return a portion of his surplus product. The wheat farmer from Brandon sends, directly or indirectly, his surplus commodities to the Niagara fruit farmer and receives the latter's surplus fruit in exchange. Both of them profit by the transaction. The Manitoba wheat farmer gets his fruit cheaper and the Ontario man his wheat cheaper than he could have produced it himself. There is a real gain to both sides.

What makes the gain possible? Clearly the possibility of sending fruit from Ontario to Manitoba, and grain from Manitoba to Ontario at a reasonably moderate cost of transportation. If that cost were too high, or if the transportation agencies suddenly ceased to act, the goods would cease to be sent, and the Westerner would be forced to produce his fruit himself, and the Easterner his wheat. If a strike of all our transportation employees occurred, our cities would be in a state of starvation within a few weeks—perhaps in a few days. If a man ceases to produce the necessaries of life for himself, he becomes dependent on other men to produce those necessaries for him. And if others produce those necessaries for him in return for the commodities which he produces, then it is necessary that those commodities of theirs shall be brought to him and his surplus commodities taken to them. This costs money, and it may well be that in some cases it will be found that although A does not produce a certain commodity so efficiently as B, yet it will be better for A to produce it for himself than to pay B for it at B's place of business and then pay for the labour of bringing it home. Whenever transportation takes place, an actual service has been performed—to put it in economic language, a place-utility is created.

All agriculture—and indeed all other business—is profoundly affected by the increasing cheapness and rapidity of transportation, which has made it possible for farmers to specialize—for the farmers of the Niagara peninsula to exchange their surplus fruit for the surplus wheat and flour of the North-West. Of course, the fruit costs the Manitoba farmers more than it would have cost consumers in Hamilton, but it costs them less than it would have cost them to produce it themselves. (This is an extreme example, as many fruits cannot be raised in Manitoba without greenhouses and steam-heat, but it illustrates the general principle.)

Cheap transportation and easy communication are primary necessities in the life of a modern society. Every business man that you talk to, every newspaper that you pick up, has something to say about passenger rates, freight rates, good roads, canals, lake and river transportation, the carriage of letters and express parcels, telephones and telegraphs, etc. A strike on the railroads or in the telephone service causes the greatest inconvenience to thousands, perhaps to hundreds of thousands. To take only one or two instances: the milk supply of Toronto or Montreal or any other large city could easily be shut off by a strike affecting the railway lines. The coal supply, which is rarely sufficient for more than a few weeks at the most, would be similarly affected. The suffering inflicted upon those who dwell in cities would be incalculable. Transportation is, then, a very important factor in the economic life of a country. It cannot be left entirely to employers and employees to say just when that transportation should be stopped. The public is deeply concerned with rates and prospective stoppages of transportation, so we have the Government appointing a permanent Railway Commission to fix rates, and passing an Industrial Disputes Act to compel an investigation of the causes of quarrels between masters and men which threaten to tie up the business of the country. This public investigation usually leads to a peaceful settlement of the quarrel.

Water Transportation.

Water transportation is much cheaper than land carriage. Before the era of railroads, the difference was even greater than it is to-day. The early settlers of Canada naturally settled where water transportation was available, as the thick bush made land transportation very difficult. During the whole earlier history of the country—before the age of railroads—water transportation was everywhere in use. During the whole of the French and the early part of the English occupation of Canada, the St. Lawrence was the chief means of communication. After the commencement of settlement west of the Lachine Rapids, it became necessary to portage goods where the water was unnavigable. This cost a lot of money; therefore we have canals built in order to avoid the necessity for it. Short canals at the rapids of the St. Lawrence were constructed 1779-1781, and were enlarged in 1804 and 1817. The Lachine canal was constructed 1821-

1825, and the Welland 1824-1829. The Rideau canal was constructed by the Imperial Government about 1834, and was a way by which immigrants came up to Canada West, until the enlargement of the St. Lawrence canals in 1847 permitted direct passage up the river to Kingston. Our canals and river service have been eclipsed as a passenger service by our railways, but for slow and heavy freight, water transportation is still everywhere preferred on account of its superior cheapness. The initial cost of these canals has been about $97,000,000.

To-day we have in existence a great freight route from Port Arthur and Fort William to Lake Erie, by way of the Sault Ste. Marie canal. We have schemes for enlarging our canals on the St. Lawrence system, and for a new Welland which will allow large ocean freight steamers to come right up the river and through the Great Lakes up to the head of navigation at Port Arthur and Duluth on Lake Superior. *This would, of course, cost immense sums of money, but it would be well worth all it costs us to be able to send our grain, etc., from Port Arthur to Liverpool without transhipment. The expense of transhipment is very considerable, and various delays are involved. No doubt there will finally be adopted some comprehensive scheme of canal construction, but just at present Canada has many ways in which to expend her borrowed money.

Roads.

The roads of Canada before the time of the railroads ran back from or alongside water routes, or often formed portages between two spaces of water communication. Thus in Upper Canada main roads run for the most part north and south, except the great east and west road which runs along the St. Lawrence and Lake Ontario west to Goderich. With the exception of a few of these principal roads, the highways throughout the Province of Ontario, as well as

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*Vessels of 15,000 tons belonging to the United States Steel Corporation now bring down ore from Northern Michigan and Wisconsin to Erie and Buffalo. The chief hindrances to navigation are between Buffalo and Montreal, and the deepening of the Welland Canal and the St. Lawrence canals would remove these hindrances.

most of those elsewhere in Canada, have been shamefully neglected. The primitive method of paying one's road tax by working on the roads (statute labor) is still widely prevalent, and as long as that is the case, little real improvement of roads repaired in that way can be effected. It seems a curious commentary on the lack of enterprise displayed by so many farmers, and the low value which they put upon their time that we find them performing statute labor, when the cost of commutation is only $1.00 per day. Of late years the good roads movement has arisen, and expert road makers are being employed in a number of counties to macadamize the principal roads. The Province of Ontario has thus expended $1,000,000, and the counties $2,000,000 within the past ten years. Nothing could be a greater boon to the agriculturist than this improvement of roads, which decreases his cost of transportation, making the cost of bringing wheat to market, let us say five cents per bushel instead of ten cents. The same saving of effort takes place in everything transported to or from the farm, and the result is a considerable addition to the farmer's income and to the cash value of his farm.

Railways.

The greatest transportation agencies in Canada to-day are the steam railways, which form the bands that link our widely scattered provinces together. Without the railway the Dominion could scarcely have been extended west of Lake Superior, and the agreement with British Columbia which carried our boundaries to the Pacific Ocean, had as its chief condition the construction of the Canadian Pacific Railway. The continuance of a vigorous policy of railway construction appears to be the only way in which we shall be able to secure the settlement of our vast territories

The whistle of the locomotive engine was first heard in Canada in the year 1836, when our first railway, almost a toy, was constructed from Laprairie to St. Johns, Quebec, a distance of 16 miles. For a time progress was slow. In 1850 there were still only 66 miles of line in Canada, but the next decade saw a considerable development. In 1853 the Northern Railway was opened from Toronto to Bradford;

in 1856 communication was established between Toronto and Montreal, and in 1858 between Toronto and Sarnia by means of the Grand Trunk Railway. Thus in 1860 there were 2,065 miles of railway in the country. In 1870 there were 2,617 miles: in 1880, 7,194 miles; in 1890, 13,151 miles; in 1900, 17,657 miles; in 1910, 24,731 miles of line—the largest amount of line in any country of our population in the world. The great increase in the service rendered by the railways is shown by the fact that whereas 5,190,416 passengers and 5,670,836 tons of freight were carried in 1875, in 1910, 35,894,575 passengers and 74,482,866 tons of freight were carried by them. Canadian railways (excluding those owned by the Government) had at the end of 1910 a total capital of $1,410,297,687, gross earnings of $173,956,217, working expenses of $120,405.440. Their net earnings were thus $53,550,877.

The railroad, like other transportation agencies, earns its money practically as a toll. Just as the miller mentioned in our last lesson levied a toll upon the wheat which he ground—1/10 or 1/12 as the case might be—so the railroad's freight earnings are simply a toll on the commodities conveyed by it from the producer to the consumer. Conceivably it might take these tolls, as the miller did, in kind—in wheat or other grain, etc. But that would involve much trouble in many ways, so the railroad prefers to get its receipts in actual money. With this money it pays its workmen, keeps its lines in repair, maintains its rolling stock, and the $53,000,000 net profits represents the excess of receipts over disbursements. This money goes to those who have invested their capital in the building and equipping of railways, which they would not have done if they had not expected some gain from the investment. Assuming that the $1,410,297,687 of stock represents capital actually invested, the dividend to the shareholders is not very great, averaging less than 4% on their investment.

EXAMINATION QUESTIONS

ECONOMICS.

LESSON 4.

1. Show by statistics the increase of the use of agricultural machinery in Canada. Is the use of machinery increasing in your neighborhood? Are the farmers who use the most machinery making the most money?

2. What has been the general influence of the introduction of machinery upon the character of the agricultural population?

3. Is the rural population increasing or diminishing in your neighborhood? Give a full explanation. (Volumes of the Dominion census are to be found in almost every public library.)

4. Is the decline of rural population a calamity? Give reasons for your answer.

5. Give instances from your experience of specialization in farming. Does the specializing farmer make more money or live better than the farmer who does not specialize?

6. Quote statistics showing the increase of agricultural production in Canada. What qualifications are to be made in accepting these statistics?

7. What would be the result in your district of a general strike of railway employees in the summer? in the winter?

8. How does the government show its interest in the business of transportation?

9. Draw a map of Eastern Canada, showing the chief canals, and tell how they are useful to the country. (See section on canals, Canada Year Book, obtainable through your M. P.)

10. What are the best roads in your vicinity? When were they constructed and how are they maintained?

11. Trace the growth of the railway system of Canada. How is it being extended at the present time?

N. B.—Students would do well to consult the good farmers and business men of their neighborhood in framing their answers to these questions. Also they should make use of such government publications as the Dominion Census and the reports of the Provincial Bureaus of Industry.